Center for International Health
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KNOWLEDGE, ATTITUDES AND PRACTICES SURVEY OF HEALTH CARE SERVICES

KEP DISTRICT, CAMBODIA

January, 2004

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Submitted March 8, 2004

Introduction

This report is based on an assessment of healthcare services in the Kep district of Cambodia, conducted in late January 2004. The report is comprised of several components. First, it aims to provide a comprehensive assessment of healthcare services presently available in the Kep region, at both the rurally based health centres and the local referral hospital. Multiple aspects of healthcare delivery were evaluated for the purposes of this report, including staffing, education and training, range of services offered, "snapshot" assessments of the spectrum of clinical problems encountered, physical resources, etc. A second objective was to determine the degree to which healthcare providers in Kep district are familiar with the Cambodian Ministry of Health's present policies, strategies and guidelines for healthcare delivery. As part of this objective, the report also attempts to assess healthcare workers' attitudes towards these documents, as well as the degree to which current activities and practices mirror the Ministry's objectives.

All participants interviewed for the purposes of this report were advised of its overall objectives and that it was carried out with the support of the Center for International Health of the University of Toronto. All were advised that their answers would be kept strictly confidential and that no specific information would be shared with or released to any Cambodian government agency.

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Health Centre Knowledge, Attitudes and Practices Survey: Kep District, Kingdom of Cambodia

The information contained in this report was collected largely between Jan. 26 – 30, 2004 through interviews, surveys and focus groups conducted at the three health centres serving the rural population of Kep District: Angkoul, Pong tak and Okrasa. While information pertaining to features unique to each health centre is presented separately, the majority is presented in a more collective manner, due to the fact that each health centre operates in a similar manner and according to similar guidelines and direction from the Operational District (OD) Office and Ministry of Health.

General Information:

Angkoul Health Centre:

Meeting: January 26, 2004

Attendees:	Mr. Son Bek, Director	Mr. Prum Samoy, nurse
	Mr. Um Keo, nurse	Mr. Buntheoun, CIH interpreter
	Dr. Patrick Skalenda	Mr. Kuy Chanthy, Operational District representative

Angkoul Health Centre was constructed in 2001 and services began in approximately August of 2002. It serves an area that was apparently emptied of any population during Pol Pot's regime but has since been repopulated. It is also the most rural of the health centres, located approximately 40 minutes by moped from the Kep beach area and government administration building. The health centre now serves a population of 7353, including 154 children less than one year of age, scattered between four villages and rural land. The furthest village is 18 km from the health centre. The health centre has no electricity or running water; washing is done using water from an artificial pond on the property and drinking water is brought on site from another nearby pond. As with all the health centres, a radio is available for communication (e.g. with the Kep hospital). Visitors typically attend the health centre in the latter part of the morning, after finishing their morning chores. Health centreSEAMEO-TROPMED staff have a hand-drawn map available of the territory under their responsibility, indicating the location of villages, wats, roads and other features. As with the other two health centres, senior staff are paid the maximum "salary" of $10 US per month, while junior staff receive a lower monthly income.

Pong tak Health Centre

Meeting: January 27, 2004

Attendees:	Mr. Lim Ang, Director	Mr. Buntheoun, CIH interpreter
	Mr. Oun Pov, nurse	Ms. Peav Sarong, nurse
	Dr. Patrick Skalenda	Mr. Kuy Chanthy, OD rep.

Pong tak Health Centre was constructed in 1999 and began offering services in August of the same year. The health centre serves a population of 8905, including 264 children. The population is divided between 5 main villages and rural land; the furthest village is approximately two hours walk away. The health centre has no electricity. Well water is available on the property and is apparently drinkable. A faded map of the catchment area has been drawn on one of the walls of the health centre.

Okrasa Health Centre

Meeting: January 28, 2004

Attendees:	Ms. Sok Chanda, Director	Ms. Ung Sophy, nurse
	Mr. Khet Samvang, nurse	Mr. Buntheoun, CIH interpreter
	Dr. Patrick Skalenda	Mr. Kuy Chanthy, OD rep.

Okrasa Health Centre was constructed in 1999 and began offering services in the same year. It serves a population of 6434, which is divided between two villages as well as the local population living nearby the health centre. It has no electricity and no well on site, but depends on bottled water for drinking and an on-site pond for washing. As with the other health centres, services are largely provided during the morning hours when a full complement of staff is present whereas only a minimum number of staff (1-2) is present during the afternoon and only a guard is present at night. All services were reported to be free of charge for all patients and there was no suggestion of accessory fees being applied. A map of the health centre's catchment area was available. The health centre building appears to be in good shape and the staff has also fixed up the surrounding grounds with flowering bushes and other vegetation.

Health Centre Staffing & Education:

Angkoul Health Centre:

Present total staff: 6 (3 men, 3 women), all equally employed; log of hours kept by director.

Name	Education and Experience
Mr. Son Bek	Director of health centre; secondary nurse*, certified; completed schooling 1967; subsequent hospital experience.
Mr. Um Keo	Secondary nurse; trained in Kampot 3 years, certified 1997; previous experience in Takeo province
Mr. Prum Samoy	Primary nurse, 6 months training in Battambang, 1973; subsequent experience in military hospitals and additional training in 1990s as "medic assistant" (taught anatomy, physiology, pharmacology, physical assessment skills).
Three female local employees	Hired locals given on-site training with specific duties each: stores/supplies, antenatal care and counseling, birth spacing and family planning.

Pong tak Health Centre

Present total staff: 8 (3 men, 5 women), all working relatively equal hours (the centre's midwife has apparently recently reduced her hours). Log of hours kept by director.

Name	Education and Experience
Mr. Lim Ang	Director; two years training as "medic" in "Russian Hospital" in Phnom Penh, 1975; no formal certificate; subsequent experience in Kampot province.
Mr. Oun Pov	Trained as "medic assistant" for five years, through NGO-sponsored program, 1992; certified; subsequent experience in Phnom Penh hospitals for 4 years.
Ms. Peav Sarong	2-year midwife training program in Kampot
Ms. Heng Nary	Primary nurse, trained in Kampot 1986-87; certified; responsible for stores/supplies, birth spacing/family planning services and outreach activities
Lim Saroeun	Hired by OD and trained for one year in Kep referral hospital and Kampot hospital (one month), 1995; no formal certificate.
Pic Bopha	Information not collected
Meach Sarorn	Information not collected

* The term "secondary nurse" was routinely used to describe nurses with at least three years of training and final certification, while "primary nurse" referred to nurses with 12 months of certified training. However, several of the latter nurses had as little as six months training and no certification. It was commonly reported that specific documents (e.g. certificates, diplomas, etc.) were usually not available, as they had been destroyed during the years of the Khmer Rouge regime. Both levels of nurse are considered capable of administering intramuscular injections or starting intravenous lines.

The terms "medic" and "medic assistant" were even more loosely defined and variably referred to either a specific training program and/or in-field experience; however, it was commonly understood that medics often have more practical knowledge than nursing staff, who were considered to have a stronger academic base.

Name?	Information not collected

Okrasa Health Centre

Present total staff: 7 (4 men, 3 women), all working approximately 3 – 4 hours per day; log of hours kept by director.

Name	Education and Experience
Ms. Sok Chanda	Director since opening of health centre; certified secondary nurse, 1993-96.
Ms. Ung Sophy	Certified primary nurse, 1986 – 87; previous experience at Pong tak HC and hospital in Phnom Penh as well as Kep referral hospital.
Ms. Chine Sonnary	Certified secondary nurse, trained in Phnom Penh, now employed as health centre's midwife.
Mr. Morm On	Certified primary nurse, trained 1987 in Kampot
Mr. Ok Oun	Certified secondary nurse, trained in Kampot, recent graduate; working free of charge for health centre for experience.
Mr. Mock Yoeun	Medic; training and experience unknown
Mr. Khet Samvang	Certified primary nurse, working at health centre since opening.

Health Centre Activities:

Activities at each of the health centres were structured similarly. The clinics all opened approximately 7:30 in the morning and were fully staffed until late morning, when a minimum number of staff (1-2) would remain until late afternoon. An attendant was present after hours for security and would advise people to go directly to the referral hospital in the case of any emergency. On rare occasions, particularly at Angkoul health centre, a member of the staff who was 'on call' would be asked to come to the health centre after hours to attend to a patient. All services at each of the health centres, including consultations and disbursement of any medication, were stated to be free of charge. This was uniformly reported by each health centre staff member I interviewed, and during my visits to each of the health centres, I did not witness any payment for any services rendered.

Health centre activities may be summarized as consisting of three essential aspects: basic ambulatory care, family planning services and outreach activities. These are described in further detail below, followed by statistics gathered at each health centre.

Ambulatory care:

Ambulatory care services are provided at each of the health centres for minor acute health problems. Patients are registered in a logbook and information concerning basic demographics, presumptive diagnosis and treatment plan is recorded. No individual patient charts are maintained. No laboratory diagnostic services at all are available at the health centres, nor even the means for specimen collection. Much basic equipment is not

available: e.g. stethoscopes, otoscopes, thermometers, etc. However, blood pressure can be measured if clinically indicated and each health centre has very basic instruments for simple laceration repairs (instruments are sterilized by soaking in cleansing agents). Patients with more complex needs are referred to the hospital and it was acknowledged at each health centre that patients often bypass the health centres altogether, opting to go directly to the Kep referral hospital. Statistics regarding numbers of patient visits at each health centre are presented in Table I, followed by a cursory analysis of diagnostic categories compiled from several randomly chosen days of patient visits (Table II). No official OD data was available regarding annual rates of various diseases although certain diagnostic categories are apparently reportable to the OD (malaria, typhoid and diarrheal diseases in particular).

An assessment of the overall competency of health centre staff was not feasible within the scope of the present study. The accuracy of diagnoses made by health centre staff was not formally evaluated and was difficult to assess given the use of varying terminology, even within the same health center (i.e. respiratory infections were variably labeled "URI," "pneumonia," "bronchopneumonia," "bronchitis," "asthma/bronchitis" or simply "cough"). Staff appear to follow standardized management protocols for certain common acute medical problems but neither the degree of adherence to such protocols by staff nor the effectiveness of the protocols themselves was assessed. Many documented treatment regimens appeared to be of questionable efficacy: for example, antibiotic courses for all infections were limited to three days duration and oral theophylline syrup was routinely ordered in patients of all ages with lower respiratory tract symptoms. Therapeutic options were very limited by virtue of the lack of pharmacological options: amoxicillin and penicillin V were used for the majority of chest infections, ciprofloxacin and cefixime for suspected STDs (with metronidazole added in cases of suspected PID), methyldopa was the only agent available for hypertensive patients, and acetaminophen was the only analgesic available. A complete formulary list is provided below in the section on medications.

There was almost no activity at the health centres regarding the diagnosis, treatment and monitoring of chronic diseases. For example, patients with grossly elevated blood pressures appeared to simply be given a several day supply of methyldopa tablets and sent home (or advised to go to the hospital if sufficiently symptomatic); no on-going management was pursued. The absence, noted above, of a patient charting system also precluded any reliable assessment of chronic diseases over time. It should also be noted that no lifestyle or health promotion counseling presently takes place at any of the health centres. Information on immunization activities at each health centre is discussed in the section on outreach activities below, as will the general topic of children's health.

As noted in the statistics presented in Table I, a small number of women opted to pursue prenatal care at the health centres, consisting of two separate visits. Information regarding specific protocols of care was not collected but awareness of common problems of pregnancy was apparent (i.e. anemia, pre-eclampsia, etc.) and immunization against tetanus was actively pursued at each health centre. Such care was provided by health centre staff with a background or further training in prenatal care and/or midwifery. Based on predicted fertility rates, only a minority of pregnant women sought such care through

the health centre system. Similarly, only a small percentage of predicted births were attended by health centre staff.

Family Planning ("Birth spacing"):

Family planning counseling constitutes an important aspect of present health centre activities, and each health centre had a room as well as staff dedicated for this purpose. Contraceptive options for women appear to be restricted solely to DepoProvera injections and oral contraceptives, with the former being utilized largely by women who had completed their childbearing years and the latter being used for purposes of birth spacing. Only a single formulation of oral contraceptive was available (see formulary listing). Women return at three-month intervals for renewals with either technique. It was not clear how much counseling occurred concerning side effects to hormonal contraceptives or the degree of satisfaction in the women receiving them. Records were maintained of total monthly visits as well as of cumulative totals. Advertising of health centre contraceptive services takes place on outreach visits but it was not determined whether contraceptive options were available to women living in outlying villages. Condoms are reportedly available at the health centres. Numbers of family planning consultations are reported in the statistics below.

Outreach:

Each health centre conducts regularly scheduled visits to the villages in their catchment area. Smaller villages would average one visit per month while larger villages would be visited twice per month. These visits appear to serve multiple purposes: immunization campaigns, provision of ambulatory health services and health promotion activities to remote villagers, and advertising/promotion of services available at the health centres themselves. Health centre directors are responsible for preparing a proposed schedule of monthly outreach visits and submitting it to the Operational District (OD) office. Once a definite schedule is confirmed, the village health volunteers and village chiefs are advised so that the local population may be informed ahead of time. Health centre staff apparently emphasize different health topics month to month; for example, birth spacing will be presented one month, malaria the next, then tuberculosis, etc.

Vaccines are provided, on ice, on the day of the outreach visit to ensure continuation of the cold chain. Vaccines are apparently viable for two days and are presumably available in the health centre itself for use by the local population. Health centre staff carry basic medications on outreach visits, including mebendazole (for suspected helminth infections), Vitamin A and short courses of antibiotics. However, no organized campaigns take place to ensure full coverage (e.g. Vitamin A supplementation for children or pregnant women). Health centre staff are required to use their own transportation (i.e. motor bikes) when conducting outreach visits as the health centres have no dedicated vehicles or bicycles for use; furthermore, staff must pay for any transportation expenditures such as gasoline. However, staff involved in any outreach clinics are paid a per diem of $2 US per clinic to help cover expenses.

The degree to which outreach activities are accepted by villagers depends upon several factors. These factors include familiarity with health centre staff and the services being offered, the distance between a particular village and the health centre, education levels and whether individuals live in the villages themselves or in the surrounding countryside. At certain times of the year, villagers' workloads are too onerous and attendance at outreach clinics drops off. The Okrasa health centre director reported that an average of 50 people are seen during an outreach clinic but that much of the population shows little interest in attending; at Angkoul, it was reported that villagers are frequently seen "running away" when health centre staff arrive. A commonly reported theme was that villagers' low level of education produced a significant barrier to the provision of services such as immunization; health centre staff face difficulties in explaining the rationale for many of their recommended health interventions. It was also reported that many villagers continue to prefer seeking health services from traditional Khmer practitioners as well as local private "pharmacies."

A significant development in the Kep district over the past year has been a community education project organized by the Cambodian Red Cross, with support from the British Red Cross. The Red Cross first became active in Kep District in 2000, with the construction of a building situated behind the local government office building in Kep. A healthcare education project by Red Cross staff was started in 2001. Recruitment and training of village health volunteers in primary healthcare education was subsequently started in March of 2003 in the regions served by the Pong tak and Okrasa health centers. At present, 24 volunteers have been trained; the project is eventually intended to train a total of 56 health volunteers. Monthly meetings are held with all the volunteers in attendance, at which time reports are given regarding education activities and statistics concerning disease occurrence (e.g. cases of diarrhea, suspected TB cases, malaria, Dengue, etc.). Volunteers are each paid $2US/month for their activities and $1 for attendance at the monthly meeting. Three fulltime staff are presently employed, including a community development officer, a field officer and the chief administrator, Mr. Uch Kloeng (cell: 012 89 35 34). The Red Cross has apparently been working closely with the health centres and has provided some teaching material for use by health centre staff.

Efforts by health centre and OD staff to ensure adequate immunization coverage appeared to be quite strong. Comprehensive records are kept detailing numbers of children in each health centre district, as well as immunization schedules of each child. Health centre staff, as well as village health volunteers (VHVs), were confident that there were very few, if any, children in their catchment areas of which they were unaware. VHVs would be advised which children needed immunizations and if the children did not appear at health centre outreach clinics, health centre staff would travel directly to the children's home to administer the vaccine. Further information regarding the adequacy of immunization activities of health centre staff is covered below.

Aside from immunizations, no form of well child care is pursued by the health centres, through either the health centres themselves or during outreach clinics. Families are given immunization cards developed in the 1990s for each child. Health centre staff felt that the cards are usually well utilized by parents, who reliably present them when immunizations are due. However, the flip side of the chart, where growth monitoring is

supposed to be recorded, is not used at all; no growth monitoring of children or other child health screening activities presently occurs in Kep district.

Ongoing Training/Education:

Ongoing training reportedly occurs at the Operational District office at regular intervals. This was corroborated at each of the three interviews. Staff at each health centre report attending sessions over the previous year on a variety of topics, notably family planning ("birth spacing"), STDs, TB, leprosy, malaria & immunizations. Courses would vary in length from one to five days. No on-site formal training was being done at any of the health centres by the OD. Similarly, no health centre staff were being sent out of the district for further training. Aside from the 1997 manual ('*Health Centre Manual'*) developed by the Ministry of Health, no reference material was available at any of the health centres.

Adequacy of training proved to be difficult to assess. No formal tools were used to evaluate knowledge level or competence in the performance of essential procedures (i.e. BP measurement) in the present study. Staff initially reported feeling adequately prepared to carry out duties in areas of practice that had been covered by training programs (e.g. immunizations, STDs, etc.). However, further questioning revealed that staff felt deficient in multiple areas of practice. Pediatric, obstetric and gynecological problems were most commonly reported as problematic areas. However, a wide spectrum of other areas was also mentioned at the various health centres, including minor surgery, geriatrics, chronic diseases, cardiovascular diseases, etc. Staff also reported that they would benefit from further education around commonly seen clinical problems (e.g. bronchitis, hypertension, etc.) and in particular around the assessment and management of sicker patients (e.g. severe dehydration or pneumonia). To a certain degree, it was evident that staff did not have a clear idea of where further education and resources were most sorely needed. This lack of prioritization most likely reflects an attitude generated by chronic lack of funding and resources, as well as pessimism regarding the government's intentions to improve services.

Health Centre Organization:

Staffing of health centres has been discussed above. As noted, most staff attend the health centre in the morning, when most outpatient visits occur (including birth spacing and antenatal visits). Two staff may be absent, conducting an outreach clinic. A "skeleton" staff of one or two remain at the health centre in the afternoon (i.e. after about 11:30-12:00). Duties are sub-divided to a degree between health centre staff: staff with more extensive healthcare education are responsible for patient consultations, while other staff are specifically trained to provide certain services such as contraceptive counseling, antenatal care, etc. More junior staff are responsible for the maintenance of stores and supplies. A degree of redundancy is factored in to ensure coverage of services in case particular staff are absent from the health centre because of illness, outreach activities, etc.

Various records are kept at each health centre in order to monitor activities. A daily patient registry is kept listing patient name, date of birth, presenting problem and treatment plan. Another log records names and dates of all women attending the centre for birth space counseling. A hardcover book is provided annually by the OD office for the listing of children's and pregnant women's names for monitoring of immunization schedules; a glance at the book will reveal for example that a particular child has not yet received his third dose of DTP. All antenatal visits are recorded. Records are also kept of medication utilization, outreach activities, staffing schedules and equipment inventory/maintenance.

Activity reports are submitted to the OD office on a monthly basis. Occurrences of certain diseases – polio, Dengue, measles, typhoid, cholera, etc. – must be reported soon after they have been seen. Although it was stated that activity reports are used to plan future activities, no clear examples of this were demonstrated. At Okrasa it was reported that a targeted immunization rate of 70% was set for 2003, with higher rates planned for subsequent years. However, no other examples of interventions with targeted rates were evident. Each health centre is visited by personnel from the OD office on a regular basis, although the frequency of such visits was not clear: Okrasa reported being visited every three months to check on stores and supplies and to assess patient numbers whereas Angkoul reported monthly visits. Pong tak health centre, located closest to the OD office, reported being visited four to five times monthly.

Medications:

Each of the health centres is stocked according to a standard formulary (see below). While the formulary is quite limited, it appears to be kept well stocked. A monthly restocking list is kept as well as a list of drugs that are running low. Full restocking occurs each month but replenishment of any drugs in low supply may occur at any time with a trip to the OD office, where supplies are kept. It was reported that medications rarely run out. Each health centre vocalized wishes that more medications were available as well as more training for health centre staff in the appropriate use of medications. As noted earlier, anti-infective medications are restricted to a three-day course and there is almost no provision for the treatment of chronic diseases. All medications are provided free of charge. An assessment of available medications and their cost at private pharmacies around Kep District was not performed as part of the present project.

Formulary List:

Oral:		**Injectables:**
Acetominophen 325 mg tabs	Oral Contraceptive Pill: Levonorgestrol 15 µgm + EES 30 µgm + Ferrous fumarate 75 mg	DepoProvera 150 mg
Acetylsalicylic Acid 325 mg tabs	Mebendazole tabs	Lidocaine
Aluminum Hydroxide tabs	Methyldopa 250 mg tabs	**External Use Agents:**
Amoxicillin 250 mg tabs	Metronidazole tabs	Gentian Violet
Amoxicillin elixir	Multivitamin tabs	Tetracycline eye ointment
Cefixime 400 mg tabs	Oral Rehydration Solution (dried packets)	
Ciprofloxacin tabs	Penicillin V tabs	
Cotrimoxazole (trimethoprim / sulfamethoxazole) tabs	Promethazine tabs	
Erythromycin 250 mg tabs	Retinol (Vitamin A)	
Ferrous sulfate/Folic Acid tabs	Thiamine	
Folic Acid tabs		

Awareness of Ministry of Health Strategies, Guidelines and Proposals:

A principal goal of the present project was the determination of the degree of awareness of health centre staff regarding various Cambodian Ministry of Health strategies, guidelines and proposals. The overall intention was to assess health centre staff's knowledge of and attitudes towards these documents, as well as the degree to which present practices reflect the Ministry of Health's strategic plan.

All three health centres use the *Health Centre Manual* released in 1997 and indeed, this seemed to be the only reference material available to staff. Surprisingly, in some of the health centres the manual appeared to be in very good shape, as if it didn't get much use. There was no indication that familiarity with the manual's contents was required of health centre staff in order to work at the centre. An analysis of the validity of the information contained in the manual was not pursued in this study.

It quickly became apparent that awareness of both specific Ministry documents and the overall Ministry of Health strategic plan was minimal. No health centre staff could describe any aspect of the 2003-2007 strategic plan and none had ever seen a copy of it. There was even surprisingly little awareness of the "MPA" series of documents, written specifically for the health centres[*]. These 13 documents, which outline the "Minimum Package of Activities" that health centres are supposed to provide to their local populations, have been variably introduced across the various provinces of Cambodia. Only the first MPA, entitled "Operating a Health Centre," has been introduced to the Kep district health centres. However, no staff member at any of the health centres had ever seen any of the other MPAs and no one was able to describe the titles or topics discussed in any of them. However, there was a basic understanding that the MPAs are intended to aid in the organization of health centre activities as well as the training of staff.

In a similar fashion, it was understood that the "CPA" document ("Complementary Package of Activities and Guidelines for the Referral Hospital") outlines activities and services that are supposed to take place at referral hospitals but there was little or no awareness of the details contained within; there appeared to be a general attitude that the CPA document was irrelevant to the functioning of the health centres. The health centres, as a whole, had almost no awareness of other documents which are in fact relevant to their operation: e.g. *The Policy on Community Participation*, *Outreach Services from the Health Centre*[*], or *The Ministry of Health Framework for Monitoring and Evaluation*.

In an effort to better assess one particular domain of practice presently pursued at health centres, specific questions concerning immunization activities were asked. The intention was to determine the degree of adherence to Ministry guidelines around immunization activities as outlined in MPA Module #9. The Module lists a number of 'actions' considered to be central to an efficiently operating immunization program.[***] Overall, there appeared to be good concordance between the listed 'actions' and actual health centre activities regarding immunizations (although it should be noted that a detailed assessment with direct observation was not done as part of this study). There was good awareness of targeted and actual coverage rates, dedicated and regular outreach activities (with visiting of individual homes if required), regard to maintenance of the 'cold chain' and sterile technique with single-use syringes, redundant training of staff in vaccination procedures, integration with other health centre outreach activities, and apparently good efforts at individual and community education. This exercise demonstrated that health centres may be proficient in activities outlined in MPA modules that have not yet been formally taught. However, immunization activities clearly took place prior to the latest

[*] A listing of the titles of each of the MPAs, as well as a brief description of topics discussed, is presented in Appendix I

[*] The director at Okrasa health centre was able to produce a Khmer copy of this document and reported that she was familiar with it.

[***] Briefly, the 'actions' include: knowledge of local communities, coverage rates and barriers; regularly-scheduled immunization activities; use of outreach programs; effective systems for vaccine provision; training of sufficient numbers of staff to correctly administer immunizations; integration of immunization activities with other health centre activities; evaluation mechanisms to assess coverage rates and annual objectives; occasional activity in national immunization programs and campaigns; community liaison activities to improve coverage rates; surveillance for target diseases; appropriate teaching of immunization recipients and appropriate community education.

restructuring of the health care system and thus cannot be interpreted as an indicator of how well new programs will function.

There appeared to be general acceptance towards the Ministry of Health's development and use of standardized national policies, strategies and manuals. At Okrasa, it was felt that the first MPA had helped in the general organization of the health centre and that any further training/education of a similar vein will promote more confidence in the population regarding the health centres. However, staff at all three health centres, when asked if they believe that the government and the Ministry of Health will actually deliver on promises to further training and capacity within the health centre system, were all relatively pessimistic. While there was certainly a degree of interest in seeing what programs and initiatives would appear in the future, there was limited hope that anything would actually materialize.

Perceived Barriers to the Provision of Health Care:

Staff at each health centre repeatedly expressed interest in working longer hours in the health centres and developing increased services to offer to their local populations. It was understood and explicitly stated that people would only begin to use the health centres more when there were visible improvements in capacity, such as longer hours of service (i.e. a full complement of staff throughout the day and improved after-hour coverage) and improved diagnostic and therapeutic capabilities. Staff clearly communicated that this would not happen until there was more support for the health centres, more training and education, and increases in their salaries (which would obviate their need to supplement their income by working elsewhere). It was consistently reported that the present highest salary was approximately $10 US per month. Informal questioning of one health centre director of what would be considered a reasonable salary resulted in an answer of approximately $100 US per month.

Aside from the obvious systemic barriers alluded to above, several other barriers were reported by health centre staff. The low level of education in the general population was repeatedly mentioned as creating a barrier. Poor education raises difficulties in explaining the rationale for immunizations, health promotion counseling, antenatal care, etc. Villagers, especially those living farthest from the health centres or being more rurally isolated, were reported to be suspicious of health centre staff and outreach activities. These patients were considered more likely to seek care from traditional Khmer practitioners, private pharmacies, traditional birth attendants, etc., all of which operate in an unregulated manner. Staff also found it difficult to convince patients to take prescribed courses of medications as patients often requested intramuscular injections instead, under the belief that the latter are more effective. It might, however, not be surprising that patients don't have much faith in the oral medications offered by health centres, given the limited pharmaceutical options available, the brief courses of therapy being used and the likelihood of misdiagnoses. Indeed, each of the health centres mentioned the need for increased training around and wider variety of pharmaceuticals.

Another reported barrier to the provision of health services is related to the difficulties involved in reaching a dispersed and largely rural population. The absence of

dedicated vehicles for use by health centre staff was mentioned on several occasions, as was the low per diem rates paid to health centre staff when conducting outreach clinics. Similarly, it was stated that health centre staff would appreciate having more contact with the village health volunteers, who they rely on for referrals and information about health problems in the villages. However, the VHVs are not motivated to spend the time and energy coming to the health centres more frequently as they are not paid for their duties as health volunteers and no per diems are available to pay for special activities or regular monthly meetings*.

Village Health Volunteer Focus Groups:

In an effort to get a perspective from the village health volunteers, focus groups were organized with VHVs from each of the villages served by the Angkoul and Pong tak health centres. In all, five volunteers from villages within the Angkoul catchment region met at the health centre with myself and an interpreter for approximately 45 minutes, followed by a subsequent focus group at Pong tak health centre with five other volunteers. All the volunteers were quite pleased with the opportunity to express their ideas and opinions and were very happy to receive $1 US each as payment.

Angkoul:

All villages were represented, from the closest (<1 km away) to the farthest (18 km away). The volunteers were all men and ranged in age from low 20s to late 40s. None of the VHVs had received any previous health training or education and simply advise villagers to seek help if they are concerned about any health problem. They have no contact with the OD office but meet infrequently with the health centre director. The volunteers report being quite aware of any pregnancies, newborns or cases of significant illness within their catchment areas but acknowledge difficulties in monitoring the entire population because of the distances involved and the lack of transportation. The VHVs report seeing many miscarriages, cases of "flu," and many patients with chronic diseases. They know of cases of childhood deaths but can't recall any case of women dying in labour or during the post-partum period in recent years.

They acknowledge that many patients choose to go directly to the referral hospital because of various perceived inadequacies with the health centre: limited hours and staff, lack of equipment and medicines, etc. They also report that patients who do come to the health centre are at times dissatisfied with the treatment disbursed and may subsequently go to local pharmacies looking for desired treatments; the VHVs were doubtful of the quality of advice and treatment given out at the private pharmacies or by the traditional healers. Some of the VHVs felt the health centres should have more injections available; it was explained to them that injections are not necessarily better than pills and are much more expensive.

The VHVs are only vaguely aware of efforts by the Ministry of Health to improve services in the health centres but "have faith" that improvements will come. They would

* As noted earlier, some village health volunteers have recently begun receiving payment of $2 US per month through their work with the Cambodian Red Cross.

like to see increases in family planning activities, availability of more medications and increases in outreach activities with more visits to villages, more advertising of outreach activities and increased use of audiovisual devices such as TV and video for health teaching. It was stated that an NGO had done a campaign in the past year to raise awareness of HIV, AIDS and TB using TV and video with a very good turnout. The volunteers also felt that having bicycles available for their use would greatly help them monitor their catchment areas.

Pong tak:

Five volunteers (four men and one woman), representing all villages, attended the Pong tak focus group. The closest village was reported as being a 20-30 minute walk, while the farthest was more than two hours away. Activities of the VHVs mirrored those of the Angkoul group but have been bolstered by training by the Khmer Red Cross, as discussed earlier. Pong tak VHVs have been provided with first aid kits and are more active in both monitoring for and educating about commonly seen diseases and preventive health practices. In contrast to Angkoul, Pong tak VHVs report that they generally hear positive comments about the health centre and that only a minority of villagers opt to use local healers. While this may reflect the closer proximity of villagers to the health centre, or the fact that the health centre has been operating longer than Angkoul's, VHVs may also simply have been attempting to placate health centre staff, who were present during the focus group session. It was felt that the present frequency of outreach visits (once to twice monthly) was sufficient.

The Pong tak volunteers report having the trust of their local populations, and feel confident that they are aware of all pregnancies, births and cases of serious illness in their catchments. Through their activities with the Red Cross, VHVs must keep records which are submitted at the monthly meetings; at the same meetings the volunteers may ask for teaching on specific diseases or health issues at future meetings. As per Angkoul, there was almost no awareness of Ministry of Health initiatives, but an optimism that the government will be acting to improve services. Volunteers hoped to see an increase in the capacity of the health centres (increased hours, improved overnight coverage and improvements in available medications) as well as enhanced health education activities for health centre staff, VHVs and the general population. Volunteers were very agreeable to the idea of having bicycles available for their use, as well as motorbikes dedicated for use by health centre staff; they were similarly receptive to the idea of increased use of audiovisual materials for health teaching.

Prey Thom "Health Centre"

On my final day in Kep District, I was advised of a fourth "health centre" named Prey Thom. I had not encountered any reference to this facility in any of the documents reviewed prior to carrying out the present survey. I was not able to collect any significant information pertaining to Prey Thom in the remaining time I had, except to learn that it did not yet operate out of an actual health centre building (which had yet to be constructed). Although not confirmed, it would appear that Prey Thom may presently be functioning solely as an outreach service, operating from a base located in the same town where the OD office is located.

Department of Planning statistics from the Ministry of Health indicate that Prey Thom serves a population of 10,794 (which is larger than any of the other three existing health centres) and that 1947 consultations were done in 2003. While no birth spacing or antenatal care consultations were performed, the records indicate that 254 births with traditional birth attendants took place and that a significant number of immunizations also occurred: 311 BCG, 303 DPT_1, 252 DPT_2, 219 DPT_3 and 140 MMR vaccinations.

Further details as to the functioning of Prey Thom will have to take place in the future to determine its actual operating structure and future plans for development.

Table I: Health Centre Statistical Data for 2003:*

	Angkoul	Pong tak	Okrasa
Catchment Population (MOH & OD data)	6972	7886	5901
Number of villages	4	5	2
Total out-patient visits	2397	2366	2989
Proportion of new consultations (i.e. non follow-up)	94.4%	93.2%	97.6%
Average # OPD visits/day (based on 250 days/year)	9.6	9.5	12.0
Family Planning: **Total 2003 visits** **Average cumulative total (i.e. number of rostered patients)**	 132* ---	 862 194	 705 171
Total antenatal care visits (1st + 2nd)	8	58	78
Deliveries with TBA / Home birth with HC staff present / Total**	89/0/89	150/4/154	127/41/168
Predicted births (based on 3.8% fertility rate)	264.9	300.0	224.2
Proportion of predicted births for catchment area	33.6% (89/264)	51.3% (154/300)	74.9% (168/224)
Immunization Activities (patients) **BCG** **DPT_1** **DPT_2** **DPT_3** **Rouvax**	 166 158 160 148 146	 212 203 231 170 174	 116 112 127 132 107

Data from Department of Planning, Ministry of Health; derived from health centre and Operational District data.

* Family planning services only commenced in final six months of 2003 at Angkoul HC.

** Traditional Birth Attendant: traditional Khmer practitioner, usually with no formal midwifery or obstetric training (according to health centre staff and village health volunteers).

Table II: "Snapshot" Assessment of Clinical Problems

The following represents a cursory assessment of the range of clinical problems encountered by staff at each of the health centres. Patient age and diagnosis for all visits over the course of one entire week to Pong tak and Okrasa health centres (Jan. 12-16, 2004 and October 6-10, 2003, respectively) were transcribed from the records. Diagnosis only was recorded over five randomly chosen clinic days at Angkoul health centre (Dec. 22, 28, 31/2004; Jan. 4, 26/2004). 40 to 60 visits to each health centre were recorded.

	Angkoul HC (n=53)	Pong tak HC (n=57)	Okrasa HC (n=42)
Infectious/Respiratory			
Bronchitis/pneumonia	21 (40%)	**<5:** 3 **>5:** 19 (39%)	**<5:** 3 **>5:** 14 (40%)
URI	8 (15%)	-	-
Asthma	3 (6%)	1 (2%)	-
Tonsillitis	-	2 (4%)	-
Otitis Media	1 (2%)	-	-
Conjunctivitis	-	1 (2%)	-
Cardiovascular			
Hypertension	3 (6%)	-	
Other	-	-	
GI			
Diarrhea / "dysentery"	3 (6%)	**<5:** 2 **>5:** 2 (8%)	**<5:** 0 **>5:** 4 (10%)
Gastritis	2 (4%)	2 (4%)	-
Worms	-	-	3 (7%)
"Flu"		**<5:** 3 **>5:** 4 (12%)	**<5:** 0 **>5:** 3 (7%)
Dermatological			
Infection/abscess	-	6 (11%)	1 (2%)
Pruritis	-	2 (4%)	-
Other	1 (2%)	-	-
OB/GU			
Miscarriage	2 (4%)	-	-
Postpartum problem	-	-	2 (5%)
Labour	-	-	1 (2%)
Vaginal discharge	1 (2%)	-	-
STD	-	-	-
Rheumatological	1 (2%)	1 (2%)	-
Wound/trauma	4 (8%)	3 (6%)	4 (10%)
Malaria	-	1 (2%)	-
Typhoid	-	-	1 (2%)
Fatigue	1 (2%)	2 (4%)	2 (5%)
Insomnia	-	2 (4%)	-
Dental	-	-	2 (5%)
Miscellaneous	2 (4%)	1 (2%)	2 (5%)

Kep District Hospital: Knowledge, Attitudes and Practices Survey
Kep District, Kingdom of Cambodia

An assessment of clinical activities, similar to that done at the three Kep District health centres, was also carried out at the Kep District Hospital. Information was provided by Dr. Jeou Chan Dina, a general physician involved in the day to day running of the hospital.

Hospital Services, Staffing and Training

Kep District Hospital was constructed in 2000 and began providing services the same year. Six physicians, all generalists, presently work at the hospital, although Dr. Dina is the only physician who works full-time on site. No specialists are employed by the hospital and none visit the hospital even on an intermittent basis to provide clinics. Each physician is responsible for one area of practice within the hospital. All physicians have completed six to seven years training in medical school. All were trained in Phnom Penh except for Dr. Nourn Seng (as well as his wife, who is also a physician) who trained in Vietnam and Dr. Pich Visal who trained in China. Dr. Dina has worked at the Kep hospital for a total of eight years, both at the former Kep hospital and at the new site since 2000. Although little detail was provided, ongoing training and educational activities are provided at the Operational District Office; topics in the past year have included tuberculosis, malaria, birth spacing and pharmacology. Rarely, continuing education activities may take place out of the district; for example, a course for physicians on HIV/AIDS was apparently provided in Phnom Penh in the past year.

Names and clinical area for each physician are listed below. Although Dr. Nourn Seng is listed as the hospital Director, I was unable to meet with him; all information was collected from Dr. Jeou Chan Dina.

Dr. Jeou Chan Dina	Responsible for operation of TB ward and monitoring of TB cases; as with all physicians, also provides coverage for out-patient department
Dr. Nourn Seng	Director of hospital; also works for Operational District Office
Dr. Sok Daleav	Obstetrics/Gynecology
Dr. Nourn Somreangsatha	Pediatrics
Dr. Pich Visal	Out-patient consultations
Dr. Chan Sokha	Medicine

In addition to the above medical staff, five primary and five secondary nurses are employed at the hospital, as well as one midwife who works with Dr. Sok Daleav in labour and delivery. No nursing aides or medics work at the hospital. The only other apparent hospital employee is a full time pharmacist. A woman employed as the hospital's only

cleaning staff quit several months earlier due to unpaid salary and, as a result, all cleaning is presently done by nursing staff. Laundry is similarly done by the nursing staff, by hand. The hospital's lab technician also quit in the past year because of unpaid salary. Patients and their families are responsible for the provision of meals and cooking facilities are available on the hospital grounds.

A variety of services are offered at the hospital but most operate on a skeleton basis because of a lack of staff, funds and supplies. Almost no laboratory investigations are being done at present, because of the lack of staff and reagents. The laboratory is presently unable to do even simple investigations such as blood counts and blood sugar determination; however, Dr. Dina is able to do malaria smears if clinically indicated. X-ray equipment is available and is occasionally operated by Dr. Dina for chest films (i.e. for his TB patients), extremities and cranial views. The quality of the films was not determined but the equipment is apparently in good working order. Almost no reference material is available to medical staff aside from a few out-of-date textbooks written in either French or English.

The hospital provides both in-patient and out-patient services. Patients typically present on their own or are brought in by their families, at their own cost. While an ambulance is available, it is unclear how often it is actually used. The hospital will see patients of any age and will admit adult and pediatric medical cases, as well as obstetric patients. Any patient requiring surgery is referred or transferred to the referral hospital in Kampot city (2-3 referrals/month), or to the ROSE charity (see below). The Kep hospital is apparently able to perform dilatation & curettage (i.e. for therapeutic abortions). The hospital always has a number of admitted patients who are there for observed treatment of tuberculosis. The length of stay for these patients is on the order of two months; it is unclear how well patients are followed after discharge. The busiest aspect of the hospital is the out-patient department, where patients are seen on a "walk-in" basis. Coverage of the out-patient clinic is by the physicians on a rotating call basis; most patients are seen during the daytime except for the occasional nighttime emergency case. Finally, a family planning ("birth spacing") consultation service is offered, presumably by the labour and delivery nurse and physician. No allied health services are available at the hospital: i.e. physiotherapy, occupational therapy, nutrionists, rehab services, etc.

ROSE is a Phnom Penh-based charity that provides surgical services free of charge. While ROSE has been active in the Kep area for several years doing surgical clinics and case-finding, all surgery was previously performed in Phnom Penh. However, in late 2003 a building on the hospital grounds was renovated and is now used by ROSE one week per month. The building houses a surgical suite, a small recovery room, a consultation/lounge room and space for washing and sterilizing (by autoclave).

There appears to be frequent and close contact between the hospital and the Operational District Office; no doubt this is facilitated by the fact that the hospital director, Dr. Nourn Seng, also works at the OD office. Reports are regularly submitted to the OD office, detailing numbers of out-patient visits, admissions, deliveries, reportable communicable diseases, etc.

Kep Hospital: Patient Volumes and Diagnoses

Approximate patient volumes were provided by Dr. Dina; some of the numbers were subsequently confirmed by OD documents. Diagnoses were obtained by transcribing the listed diagnoses for hospital admissions during the month of December 2003 and for patients seen in the out patient clinic on randomly selected dates.

Patient Volumes:

TB ward:	40 – 50 admissions yearly
Pediatrics:	8 – 12 admissions monthly
Deliveries:	10 – 15 monthly (119 total in 2003) (Department of Planning, MOH data)
Out-patient consultations:	20 – 25 daily, 600 – 800 monthly (including 10 – 20 emergency cases monthly)
Out-patient medical consultations	2 – 3 monthly (Dr. Sokha)
Total out-patient consultations:	4,510 (2002) 8,734 (2003)
Bed occupancy rate: (excluding TB)	62% (2002) (MOH data)

Admitting Diagnoses, December 2003:

Pneumonia (2)	Malaria (4)	Coma (subsequently died)
Typhoid (4)	Sciatica	Food poisoning (2)
Hypoglycemic coma	Dysentery (2)	Chronic diarrhea
Abdominal pain	Tonsillitis/pharyngitis	

Out-Patient Diagnoses (randomly-selected dates):

December 14, 2003:	Dysentery UTI Miscarriage STD	Vaginal wound Pharyngitis Typhoid	URI (3) Tonsillitis Hand abscess
December 16, 2003:	"Flu" (2) Ascaris (2) Abdominal pain Cough Typhoid (2) Vaginitis	Laceration URI Wound Miscarriage (4) Scabies Bronchitis (3)	Furuncle Delivery Tonsillitis Ascaris Dysentery UTI

Awareness of Ministry of Health Strategies and Future Directions:

Dr. Dina demonstrated good awareness of various MOH documents, policies and strategies. He was familiar with the content of the Health Centre Manual, and knew of the MPAs. He was likewise familiar with the CPA document, as well as a document I had previously been unaware of, the *Clinical and Therapeutic Guidelines for Referral Hospitals*, published in 1999. Dr. Dina was aware that the purpose of the MPAs and CPA was to standardize training across Cambodia and to divide responsibilities between health centres and referral hospitals. While he concurred that such objectives were reasonable, he professed little faith that they would be achieved; in particular, he had strong doubts that the remainder of the MPA modules would ever be taught to health centre staff. Dr. Dina was aware of the 2003-2007 strategic plan for health but was of the opinion "that there is much talk but little action."

When asked how the Centre for International Health might best support hospital activities, Dr. Dina expressed interest in several areas. He was first interested in opportunities for teaching, particularly in the diagnosis and management of serious and complex diseases, such as heart disease, strokes, diabetes, etc. He was also hopeful that CIH could provide support and training towards the re-establishment of a functioning laboratory. Secondly, Dr. Dina was hopeful that CIH would help in the procurement or provision of funding, which he felt could be used to motivate education activities in the health centres (such as further coverage of the MPA modules). He also thought that the hospital-based physicians could be encouraged to conduct regular clinics at the health centres if funding for such activities were available, and that this would serve to draw more patients. Lastly, Dr. Dina hoped that CIH would be able to increase the range of services the hospital could provide. Specifically, he hoped that more could be offered in the areas of dentistry and surgery, as well as laboratory services as noted above.

Appendix I
Minimum Package of Activities: Overview of Topics

MPA Module 1: Operating a Health Center

- Intro to health centers; understanding content of MPAs/CPAs
- Identifying community health problems and assessing needed resources; planning of healthcare delivery
- Organization and management of health centers; use of the Health Centre Manual; strategies for organizing and delivering MPA services
- Preparation of schedule of activities and staff work schedule; setting of monthly/yearly goals

MPA Module 2: Patient Assessment

- Approach to consultation
- History taking; interpersonal skills; medical and health history
- Vital signs skills; significance of abnormal findings
- Use of Health Center Manual in diagnosis and treatment plans; prescribing of medications and patient education

MPA Module 3: Unable to obtain

MPA Module 4: Adult Common Diseases

- Selected topics: fever, malaria, typhoid, acute bronchitis, pneumonia, abdominal pain, headache, diarrhea, goiter, anemia, skin diseases, eye problems, HIV/AIDS, mental health (insomnia, depression, anxiety, alcohol abuse, psychosis), intestinal parasites, schistosomiasis, etc.

MPA Module 5: Chronic Diseases

- Hypertension: BP reading, diagnosis, referral indications
- Diabetes: definition, symptoms, prevention, etc.
- Cancer: breast, lung, liver
- Leprosy, TB, viral hepatitis

MPA Module 6: Basic Hygiene and Infection Control

- Microorganisms, transmission, sterilization/disinfection, etc.
- Wound care and dressings
- Health centre hygiene, waste disposal, water management
- Village hygiene

MPA Module 7: Unable to obtain

MPA Module 8: Health Centre Management

- Patient flow, curative consultations, patient referral, community participation
- Job descriptions, team development and responsibilities, leadership
- Physical asset management, waste disposal, preventive maintenance, reports
- Medical supplies list, essential drug list, drug storage, etc.
- Accounting duties, book keeping, reports, budget planning, monthly expenses planning
- Health information system, monitoring/supervision/evaluation, activity reports, staff schedules, etc.

MPA Module 9: Expanded Program on Immunization (EPI)

- Organizing immunization programs, safe vaccination practices (cold chain, sterility, etc.), management of common problems, patient education
- Community assessment, disease surveillance, prevention

MPA Module 10: General Nutrition and Growth Monitoring

- Breastfeeding education and promotion, nutritional assessment and management
- Malnutrition: assessment and management
- Anemia, Vitamin A, etc.

MPA Module 11: Normal Delivery

- Maternal mortality, labour and delivery management, 2nd-stage problems, post-partum teaching

MPA Module 12: Antenatal and Postnatal Care

- Breastfeeding practices and problems
- Antenatal and postnatal care: refers to document *Safe Motherhood: Clinical Management Protocols for Health Centers*
- Target populations and coverage

MPA Module 13: Emergency Treatment and Minor Surgery

- Emergencies: Airway management, drowning, bleeding problems, animal & snake bites, seizures, fractures, burns, poisonings, allergic reactions, etc.
- Wound dressings and bandages, slings, etc.
- Laceration repairs, abscess incision and drainage